

February 1, 2023

Jim Murphy, Chair
Government Efficiency and Downsizing Committee
201 W Capitol Ave, House Hearing Room 6
Jefferson City, Missouri 65101

Re: MEEA's comments on the regulation of construction standards for insulation in new dwellings

Dear Chairman Murphy and Members of the Government Efficiency and Downsizing Committee,

Thank you for the opportunity to speak on the regulation of insulation standards in new Missouri homes. The Midwest Energy Efficiency Alliance (MEEA) is a member-based, non-profit organization promoting energy efficiency to optimize energy generation, reduce consumption, create jobs and decrease carbon emissions in all Midwest communities. We have worked in Missouri and other states to provide technical assistance and education on energy efficient building policies since 2009.

MEEA supports the installation of 1) wood frame wall cavity insulation with R-values greater than 13, 2) exterior continuous insulation, and 3) ceiling insulation with R-values greater than 38. MEEA also supports new homes having maximum air leakage rates of less than five air changes per hour. All these methods are considered best practices for improving energy efficiency in buildings.

Limiting the regulation of insulation standards in new Missouri dwellings would lead to less efficient and resilient homes, higher utility bills, reduced workforce development, negatively impacted overall economy, and less opportunities for cities and counties to receive access to the \$1 billion+ dollars made available through the Bipartisan Infrastructure Law and Inflation Reduction Act.

1. Insulation is crucial for building and maintaining energy efficient and resilient homes

Home insulation provides resistance to heat flow and thereby lowers heating and cooling costs.¹ In general, heat flows from warmer to cooler areas. The heat that is lost during the colder months must be replaced by heating systems, and the heat gained during the warmer months must be removed by cooling systems. When a home is properly and sufficiently insulated, the overall heat flow is decreased – heating and cooling systems do not need to run as much, and homeowners and occupants do not need to pay as much.

Additionally, with better insulation, residents can shelter in place longer and more comfortably during extreme weather events (i.e., tornadoes, heat waves) and/or power outages. Evidence shows that energy efficient construction techniques and products protect homes in extreme weather events, especially when utility services are disrupted.²

2. Energy efficiency is the most cost-effective way to ensure lower utility bills

¹ <https://www.energy.gov/energysaver/insulation>

² The Important Role of Energy Codes in Achieving Resilience (https://www.iccsafe.org/wp-content/uploads/19-18078_GR_ANCR_IECC_Resilience_White_Paper_BRO_Final_midres.pdf)

Energy efficiency simply means using less energy to get the same job done. By lowering energy use, energy efficiency also reduces monthly energy bills and makes energy more affordable. Encouraging adoption and implementation of the most up-to-date model energy code standards presents a cost-effective way to reduce the energy consumption of homes in Missouri and save residents money. For example, if all municipalities updated to the 2021 International Energy Conservation Code (IECC)³ (as Kansas City recently did), the entire state would see energy savings of 26%, which equates to nearly \$700 of annual utility bill savings for the average Missouri household.⁴ The easiest and most cost-effective time to make these long-lasting improvements is during initial construction, making energy codes a significant driver of cost savings in the state and generating energy savings for the life of the home.

3. Stronger codes improve the building workforce and overall economy of the state

Besides the clear benefit of lowering utility bills and thereby increasing residents' disposable income, newer building energy standards also provide extensive opportunities for statewide workforce development. They do this by leveraging the latest building science and technology while also providing various building professionals with valuable learning opportunities. This technical assistance may include analysis of energy savings and cost impacts associated with code adoption, comparative analysis of future code options, customized educational materials, web-based or in-person training programs, or compliance resources and software tools (like COMcheck and REScheck).

If Missouri municipalities are permitted to adopt newer energy standards (e.g., the 2021 IECC), there are more available resources to educate local designers, builders, building operators, and code officials (among others) about how to properly comply. MEEA itself offers training sessions and webinars to building professionals, municipalities, states, utility companies, etc., and once these entities learn how to properly use the newest building techniques and technologies, they start to realize significant cost savings as well. Indeed, **MEEA's energy code trainings have significantly improved compliance in Missouri**,⁵ as well as in Kentucky and Nebraska.

Overall, updated energy codes provide states and localities with a great opportunity to build up their workforce. The building industry is constantly evolving, and industry professionals understandably want to remain ahead of the curve. Their businesses improve if they know something their competitors do not. Updated energy codes give them that chance.

By continuing to adopt and implement updated building energy standards, Missouri will see increased economic development and technical innovation within the construction industry. In supporting lower standards, the state will have an undertrained workforce that falls behind neighboring jurisdictions and an out-of-date building stock that wastes energy and money.

³ From the 2009 IECC

⁴ TCost-Effectiveness of the 2021 IECC for Residential Buildings in Missouri (https://www.energycodes.gov/sites/default/files/2021-07/MissouriResidentialCostEffectiveness_2021.pdf); See U.S. DOE's Determination of Efficiency (<https://www.energycodes.gov/determinations>)

⁵ Missouri Residential Energy Code Baseline Study (<https://mosaves.com/publications/missouri-residential-energy-code-baseline-study/>)

4. It is up to local governments to decide what works best for themselves and their communities

The way that Missouri law is written (providing for no mandatory statewide energy code), local jurisdictions are *meant and expected* to adopt whatever type of building energy standards they (and their residents) want. At least 14 counties and 108 cities in Missouri currently have standards in place that go beyond the insulation regulations of the 2006 IECC.⁶ Notable examples include Kansas City, Springfield, and St. Louis City.

Kansas City - As referenced above, Kansas City adopted the *full, unamended* 2021 IECC last year, the strongest energy code in the state. In doing so, it has provided its homeowners and occupants with significant savings on their utility bills for years to come. According to a determination by the U.S. Department of Energy (DOE), updating to the unamended 2021 IECC would result in a national average of 9.4% energy savings and 8.7% energy cost savings compared to the 2018 IECC.⁷ Of course, those savings will be even higher if updating from an even older code. The adoption of the 2021 IECC also helps Kansas City meet its climate goal of achieving carbon neutrality by 2040.⁸

Springfield - Springfield, Missouri also updated its building energy standards last year to the 2018 IECC. Compared to the city's previous residential code per the home specifications outlined by the Springfield Building Department,⁹ this will reduce homeowners' energy use by an average of nine percent per year, saving them \$142 annually on their energy bills.¹⁰ Even when factoring in increased costs, this update proves to be cost-effective. A homeowner with a 30-year mortgage will realize a positive cash flow after 17 months.¹¹ The energy savings and cost-effectiveness of the 2018 IECC are even more favorable for larger homes with more volume. For instance, when using the standard U.S. DOE model home (2,400 sf) located in Springfield, a homeowner would reduce their energy use by 20%, save an average of \$408, and see a positive cashflow in around six months.

St. Louis City - Finally, St. Louis City has adopted the 2018 IECC. Due to this update, new homebuyers in St. Louis are expected to reduce their annual energy use by 27% and energy costs by approximately \$580 annually.¹² When factoring in increased costs, this update proves to be cost effective. A homeowner with a 30-year mortgage will realize a positive cash flow after eleven months, and a life-cycle cost savings of over \$7,700.¹³ Additionally, the clean energy sector currently supports more than 14,400 jobs in the St. Louis Metro area, which is more than one third of all clean energy jobs in the state. Of those jobs, 83% are in the energy efficiency sector, and

⁶ <https://dnr.mo.gov/energy/energy-efficiency/codes-jurisdiction>

⁷ See U.S. DOE's Determination of Efficiency (<https://www.energycodes.gov/determinations>)

⁸ Kansas City, Missouri Climate Protection and Resiliency Plan

(<https://www.kcmo.gov/home/showpublisheddocument/9561/638066074662570000>)

⁹ Modeling based on a 1,547 sq. ft., one-story home with a conditioned crawl space

¹⁰ See MEEA's "Springfield Residential Energy Savings Advanced 2006 to 2018 IECC" fact sheet

¹¹ See MEEA's "Springfield Residential Energy Savings Advanced 2006 to 2018 IECC" fact sheet

¹² MEEA conducted an REM/Design analysis using DOE model home specifications (St. Louis 2009 IECC to 2018 IECC home), determined energy savings and multiplied that number by Ameren residential energy costs. Assumed 36% electric heat and 64% gas heat based on NREL database for MO.

¹³ Based on the U.S. DOE methodology for residential cost-effectiveness in energy codes.

<https://www.energycodes.gov/development/residential/methodology>. Incremental Costs of \$3,274 were derived from the following sources: PNNL, RS Means, St. Louis Home Depot, and local energy raters.

the vast majority are interdependent with the building industry, whether it be HVAC, insulation, or lighting.¹⁴ These are good jobs in a vital, growing sector of St. Louis' economy. In fact, the clean energy sector grew at a rate of 5.3% from 2015 to 2016 in Missouri – over three times faster than all other sectors in the state.¹⁵ With over 40% of energy being consumed by the building sector, building energy codes are the foundation upon which most clean energy jobs are built.

Prohibiting jurisdictions from adopting new energy standards and enforcing currently adopted standards that go beyond the 2006 IECC effectively rolls back energy codes in several Missouri jurisdictions. These municipalities have worked incredibly hard to get to where they are today. They have done the research, the outreach, and the education necessary to understand what they can accomplish and how. They have set advanced goals for themselves to achieve better and cleaner buildings, and they have committed to achieving those goals by adopting stronger building energy standards. In short, certain cities and counties have worked incredibly hard to get to where they are today, and they have done so in order to make Missouri a better place to live and work, to make Missouri attractive for businesses and funding, and to make Missouri a leader in energy conservation and innovation. To effectively “roll back” the results of this hard work would be to wash away years of dedication, energy and cost savings, and all-around progress.

5. Energy conservation efforts must be made if Missouri wants to receive federal funding

Over one billion dollars will be made available through both the Bipartisan Infrastructure Law and the Inflation Reduction Act for advancements in building energy efficiency. By prohibiting the adoption of insulation standards above those of the 2006 IECC, the state of Missouri would be *denying* its local jurisdictions any opportunity to receive that federal funding. Of course, this would be unproductive, and even detrimental, to the state's overall economy.

If you have any questions about this testimony, noted reports and references or general impact and analysis of building energy codes, please contact Maddie Johnston, Senior Building Policy Associate for MEEA at mjohnston@mwalliance.org. Thank you for your consideration.

Sincerely,



Stacey Paradis

Executive Director

¹⁴ Clean Jobs Missouri. <http://www.cleanjobsmissouri.org/>

¹⁵ Clean Energy Trust, Clean Jobs Midwest, <https://www.cleanjobsmidwest.com/state/missouri>